



PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND

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NEWSLETTER

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CONTENTS

- 1.0 PRENTICE COMPUTER CENTRE BUDGET
AND DEVELOPMENTS - 1980
- 2.0 BUILDING WORK
- 3.0 DELETION OF OLD SELF-SERVICE PRINTER
REQUESTS

ATTACHMENT - INDEX TO PRENTICE COMPUTER CENTRE
NEWSLETTER ISSUES - 1979

1.0 PRENTICE COMPUTER CENTRE BUDGET AND DEVELOPMENTS - 1980

On 13 December 1979 the Deputy Vice-Chancellor (Fabric & Finance), Mr. J.E. Ritchie, who is the chairman of the Prentice Computer Centre Management Committee sent to all Deans and Heads of Departments the following memo which sets out the basis and significant aspects of the Centre's budget for 1980 as well as giving details of some planned developments.

With Mr. Ritchie's permission, the memo is reproduced in this first Newsletter of 1980 for the benefit of all our users.

"On the recommendation of the Finance Committee, the Prentice Computer Centre Budget of 1980 was approved by Senate at its meeting of 29.11.79.

The 1980 Prentice Computer Centre Budget has been developed on the basis of existing policies. It may be helpful to state these briefly. The Centre should recover sufficient revenue to cover its operating costs. Charges for individual services should be related to the costs of providing the service and users of one service should not subsidize another service. Where there are services which may have long term benefits to the University but which may not be funded immediately by departments, the costs and benefits of these are shown separately and the Finance Committee then recommends whether funding allocations should be made for such services. It should be noted also that internal rates do not include a charge for amortization of capital. However, the 1980 Budget has been framed having regard also to the comments of the Vice-Chancellor's Committee undertaking a review of computing resources. The Committee advised that it would not be able to report before the preparation of the 1980 Budget. The Committee did suggest some guidelines which will be applied in 1980, related to the continuation of the Student Low Overhead Time Sharing Service and its extension to include post-graduate students, the computing needs of research, the continuation of training for academic staff and post-graduate students, as well as the continuing provision of consulting and advisory services to departments and support units.

Although initially established to provide a centralised computer facility for users, with the wider investment in computing facilities in departments, the role of the Centre has changed. With Senate approval, the Centre, while continuing to serve users with direct computer services, contract programming and advisory groups within the Centre, is now servicing departments in a wide range of developments. The training of academic staff and post-graduate students in the use of computers has increased significantly. The hardware and software support services provided by the Centre for departmental computers have assisted with their effective establishment and use and provided rational procurement procedures which have resulted in significant capital and recurrent savings to the University.

Against this background, the impact of the 1980 Prentice Computer Centre Budget is as follows:-

General Computer Time Sharing Service

This is based on the PDP1090 (KL) system. Charge rates were reduced on this system on 1.3.78 and 1.4.79. The prime shift rates in money terms are less now on average than in 1972, despite significant inflationary increases. In addition, we have now low priority rates of 1/2 and 1/4 of day-shift rates based on time of day for terminal usage and on turnaround time for batch usage. The aim of the charge reductions in 1979 was to establish charges which hopefully could be maintained for 3 years; initial losses due to inelasticity of demand and inflationary cost increases being met by demand growth in later years. The 1980 Budget therefore does not include any variation in existing charge rates for the general time-sharing service.

Pending the conclusions of the Vice-Chancellor's Committee on computing, some interim measures were adopted in 1979 to increase access to computing for particular areas. These will be continued in 1980. They are:

- (a) Sunday operations at 1/4 of Prime Shift rate. This service will cease on 16.12.79 and will recommence on 13.1.80 and be available through 1980. The service will not be provided on Sundays of a long weekend, however, due to staff scheduling difficulties.
- (b) Each department will continue to receive a grant of computer time of \$100 for use after 6 p.m. for the purpose of trial and practice.
- (c) Each staff member and post-graduate student attending a Computer Centre training course will receive a grant of \$20 of computing time for practice use following the course.
- (d) The grant of computer time for research and innovative teaching programs where computing is the major resource and which could not be funded normally from other fund sources has been increased from \$11,000 for the period 1.7.78 to 30.6.79 to \$23,000 for the period 1.7.79 to 30.6.80. This grant has been allocated to projects by the Research Committee.

Additionally, in the course of preparation of the 1980 Budget, the Prentice Computer Centre Management Committee referred to the Research Committee its view that research resulting from external grants such as ARGC should not be inhibited due to lack of internal computer time. With Research Committee support, the funds for this purpose have been increased by 50% in the University URG budget for 1980 to improve effective

funding of computer time for such research.

It is worth noting that these special provisions for research increase the equivalent funds for research from the General Funds area by 60% over the 1978 level. If advantage also is taken of the 1/4 rates for Sunday operation and low priority batch work, the computing dollar can be stretched appreciably.

There has been some views expressed that accessibility to the central computer would be improved if the system was available for use on a continuous basis. Under current policies, the Management Committee has to take into account the relationship of demand to total operating costs and at this stage has not approved the introduction of a third shift of operations. Should demand continue to increase at the current rate, however, this may be necessary before the end of the year. As a first stage in 1980, it is envisaged that during peak end-of-semester periods, a third shift from midnight will be introduced on a manned basis, and that service between 8.30 p.m. and midnight will be unattended. The Management Committee will keep the need for additional hours of operation under review.

Student Low Overhead Time Sharing Service (SLOTS)

This low cost and lower priced service was introduced as a trial in Second Semester 1979 to test its feasibility. The major users felt that with some improvements (not possible in a trial period), it should be continued in 1980. It has also been approved that the facilities of the SLOTS system should be extended to improve access to low cost computing by post-graduate (higher degree) students and that such work could be funded from the UC Special Research Grant as well as from the General Recurrent Fund. Full details of the operation of SLOTS for 1980 is provided in the Prentice Computer Centre Newsletter N-246 of 12th November, 1979.

It is planned that the SLOTS system expanded as described to include post-graduate students, will be available 22-3/4 hours daily from start of First Semester 1980. The Centre is also introducing improvements which should increase the number of jobs available to users by one-third over those at the end of Second Semester 1979.

Contract Programming, Consulting and Training

The Centre will continue to provide contract programming and consulting services on the basis of users paying the salary cost of the staff member used on the project plus 15% for overheads.

Up to one man-week of professional staff time will be provided free on a project to assist departments to investigate the feasibility of a particular computer application and appropriate system strategies. This service is aimed

particularly in assisting departments to make applications to external bodies for research grants. It might be noted that, although many granting authorities will not fund internal computing time, they will give consideration to the cost of staff time for programming and data collection and conversion.

All training conducted by the Prentice Computer Centre is free to staff and post-graduate students.

Support for Departmental Computers

Dating from the preparation of the 1976-78 triennial estimates, the University recognized that given the then relatively new technology of low cost but powerful minicomputers, there was justification for the establishment of such computers for specialised tasks within departments. The population of minicomputers on campus has grown dramatically from some half dozen at the end of 1977 to over 40 currently.

Along with this policy to distribute computing resources, there was also a need to ensure as far as possible that such developments progressed in a rational way. The Prentice Computer Centre provided free services to departments in determining equipment needs, arranging collective purchase, and acceptance testing and bringing into operation the equipment on behalf of departments. Significant rationalization was achieved which permitted common spares holdings, the establishment of a preventive and remedial maintenance service at half the cost to departments of external maintenance, and free software distribution services. Overall, the provision of such services by the Centre has resulted in net savings to the University of around \$100,000 per annum.

Within the 1980 Budget, it has been approved that the free services for general consulting advice on departmental mini and micro computer equipment and the free software distribution will continue.

The rate for preventive and remedial maintenance services of 7.5% of the capital cost was determined in 1977 when we had little experience of costs. It then represented half of the cost of externally provided maintenance. Since then, of course, labour costs have increased and our costing suggests that a rate of 9.5% of capital would be a realistic charge. External rates now run at about 18% of capital. Within the Computer Centre 1980 Budget, it was approved by Senate on recommendation of the Finance Committee that maintenance charges would be increased from 1.1.80 to 9.5% of capital cost.

In discussions associated with this decision, some concern was expressed that some departments might decide to cancel maintenance contracts and seek assistance only when a fault occurred. It is believed, however, that most departments have

sufficient regard to the importance of protecting the life of a University capital asset and maintaining its operational reliability. The present infrastructure of trained technical staff and a pool of spares available within the Centre, is only possible if departments elect to take out a maintenance contract with the Computer Centre. In circumstances where departments (not having trained technical staff) decide not to take out full maintenance cover with the Centre but elect to call on the Centre for remedial maintenance only, these services will be provided after the needs of contract maintenance customers have been met, will involve a full preventive check-out at hourly charge rates, and any replacement parts required will be ordered directly rather than drawn from the pool of spares maintained from funds supplied by contract maintenance charges.

General Developments 1980

The association of computers and communications has been one of the most significant developments of recent time and this association is likely to continue well into the future. Whereas in 1972, there were around 20 terminals connected to the system, there are now over 200 terminals with access to the system as well as a number of minicomputers.

The normal transmission speed over communications has been increased from 100 bits per second (bps) in 1972 to 300 bps with increasing requirement for higher speeds.

The increase in the number of devices connected to the network and the demand for higher transmission speeds has resulted in significant increases in recurrent costs incurred in the hire of communication facilities from Telecom Australia.

A feasibility study has indicated that the replacement of Telecom Australia facilities on campus could be justified on economic and service grounds. This will be developed in greater detail during 1980. There appears to be little doubt that the future rational development of computing resources in the University is very dependent upon the establishment of a sound low cost service oriented data communications network.

The micro-processor is likely to have somewhere near the same impact on computing within the University in the early 1980s as minicomputers had in the late 1970s. Again, the Centre has a problem in being able to influence departments to participate in a co-ordinated approach without imposing constraints inhibiting departmental developments. The major work for 1980 in this area will be the development of a standard micro-processor system to be associated with instrumentation for data acquisition and control; the development of a low cost terminal concentrator and switching device for use in the communications network; a survey of the most appropriate micro-processor based terminals to meet requirements of the University for use as intelligent terminals;

and the development of decentralized functions (e.g. editing) to be used on such micro-processors. The Centre has a range of facilities to assist departments in applying micro-processors to specific functions and will, of course, continue to provide consulting advice to departments in this area. It might be noted that, whilst the Centre has knowledge of a number of micro-processors, it has found that for a number of reasons (including availability of components and support systems) the Centre has tended to adopt the Z80 micro-processor as the base for systems which it is developing.

There is now available a wide range of micro-processor computer systems - so called home or hobby computers. Tandy, Sorcerer, Apple and Compucolor would be representative of this class. A number of departments have purchased or are contemplating the purchase of computing equipment of this nature. Such systems can be useful as teaching tools and can be applied appropriately to specific dedicated functions. The level of software currently existing for such systems, however, suggests that they may not be appropriate for general computing within the University in comparison with the mini-computer and central computing resources which are available. Departments considering the acquisition of such micro-computer systems should consider whether the systems are capable of being used as a terminal to the data communications network (including, at this stage, Telecom Australia type approval) and whether they can be applied to a specific application function.

Word processing is another area having recent significance in computer applications. There are areas where stand-alone word processing systems based on micro or minicomputers can be justified. However, software which has similar functionality as the word processing systems now being offered, has been available on the central computer system for some time. This has been upgraded to allow greater ease for use for non-programmer personnel and extended to provide typesetting facilities. Departments interested should discuss the services available with the Director.

Data base software is another area of increasing importance and the Centre now has available two proven software packages which cover most of the areas of data base applications. During 1979, they have been used in a number of projects developed by the Centre under contract for a wide range of academic departments. In early 1980, the Centre will conduct training courses in their use and will provide increasing support in this area.

Associated with such software availability, increasing emphasis will be placed on providing such general purpose data bases as census information, weather information, etc., that can be easily referenced by a query language. The Centre would hope to establish over time a range of scientific data base with

particular reference to Queensland.

Conclusion

I have written rather fully on the 1980 Budget and plans of the Prentice Computer Centre because it is useful from time to time to summarize the services and developments of a support service which is becoming increasingly important over a wide range of University activities. More, of course, could be done in a number of areas but the Director and Management Committee do have a continuing problem of meeting increased demand for services while at the same time containing costs in line with the general funding limitations of the University.

The Director of the Centre would be pleased to provide further detail on the facilities offered by the Centre and discuss with you any problems you or your staff and students may have in using them."

J.D. Noad
Acting Director

2.0 BUILDING WORK

At long last the first stage of the building work in the "new" area, adjacent to the Hawken batch station, is almost complete! We hope to move in over the Australia Day long weekend (1980).

The second stage of building work, to renovate the batch area itself, should start immediately and be completed in 2-3 weeks. Although the printers, plotters and card readers will be operating in rather cramped and unsuitable conditions during this period, the operations staff will be doing their best to maintain normal services. We trust that our users will be sympathetic to any service difficulties which might arise during these renovations.

When all this work is complete it will provide

- (a) a new public terminal room with (in due course) 15 terminals and adequate bench space for working
- (b) a larger room for graphics and other special services (e.g. high quality text output)
- (c) new self-service printer area
- (d) 'pigeon-holes' for output so that users can collect

their printouts outside of staffed service time

- (e) an improved batch station area
- (f) extra accommodation to give the Centre staff some degree of relief from the very overcrowded conditions in the basement.

However users should note that

- (a) The new public terminal area will also be used as the Centre's terminal laboratory for (i) giving courses during vacations and mid-semester breaks and (ii) giving seminars and tutorial sessions on various topics during semester on Wednesday afternoons.

At these times the terminals will not be available for public use.

- (b) Although the air-conditioning duct work has been installed in the new area, we have not yet been given a date for installation of the chiller plant. Until the air-conditioning comes into service problems may be caused by equipment overheating. Please switch off suspect equipment and immediately report the problem to the service desk in the batch station.

J.D. Noad
Acting Director

3.0 DELETION OF OLD SELF-SERVICE PRINTER REQUESTS

As previously mentioned (in N-246) on the KA system, print requests for the self-service printer will be deleted if not printed within 48 hours.

Please note also that on the KL system, such requests will be deleted if not printed within one week.

W. Gout
extension 3023

INDEX TO PRENTICE COMPUTER CENTRE NEWSLETTER

Dates of Issues Published in 1979

N-236	12 February 1979	
N-237	19 March 1979	
N-238	2 April 1979	
N-239	21 April 1979	
N-240	4 June 1979	
N-241	17 July 1979	
N-242	17 August 1979	(special edition)
N-243	20 August 1979	
N-244	10 October 1979	
N-245	22 October 1979	
N-246	12 November 1979	
N-247	3 December 1979	

issue pages

A

Accommodation		
Public areas in the Hawken Building	N-236	1-2
Advertisements - use through Newsletter	N-238	5
Art - National Computer Art Contest	N-244	3
Automatic Answering Modem on KL	N-236	5

B

BASICP - enhanced version of BASIC	N-243	6-7
Batch priorities	N-239	7-8

C

CALFORM - new version	N-238	3-4
Card punches discontinued (see QDATA)	N-247	1-2
Card reading for station 2 discontinued	N-237	4

N-248
21Jan80

Charge rates		
new rates for cpu, kcore and printing	N-238	1
new external rate	N-238	2
maintenance of terminals	N-243	7
under SLOTS	N-243	1-3
Christmas/New Year break	N-247	1
Computer Centre statistics (see Statistics)		
Computer Resources		
VC's memorandum to departments	N-239	1-3
Core - increase in core limits	N-236	1
Courses		
mid-semester 1 and mid-year	N-239	5-7
mid-semester 2	N-241	3-6
for 1980	N-247	7-8
CLUSTAN - multivariate analysis package		
manual available	N-236	5
CLUSTER & TAXAN - numerical taxonomy suite		
additional option	N-236	6
modification to CONVRT program	N-236	8
loss of output	N-245	4

D

Data Base Management - system 1022	N-247	6-7
Diablo ribbons	N-246	6
Disk space, lack of system space	N-244	1
Disk quotas		
logged out limit extended	N-236	1
Document Preparation Service		
possible introduction	N-237	6

E

External Users - new charge rates	N-238	2
-----------------------------------	-------	---

F

File Daemon - extended file protect option	N-238	4
not being run on KA	N-246	5
FMS - File Migration System		
testing of new system	N-237	1
please use new system	N-244	1-2
FORFLO - Fortran Flowcharter & Re-formatter	N-244	4
FORTTRAN (F10)		
* double precision on the KL	N-237	3
FUR - file manipulation program	N-240	4

G

Games - removal until end semester	N-245	3
GLIM - new maths package	N-239	4-5

I

IMSL library, new edition N-240 3-4

L

Labels package - new running instructions N-236 7
LIBMAN - library management N-247 5

M

MACRO - table of contents facility N-244 3
MLAB - on-line modelling laboratory N-239 4-5
Mounting private packs on weekends N-239 3-4

N

NAG, library of mathematical routines N-243 5-6
Network of KA, KL and batch stations N-241 6-7
 current network developments N-242 1-21
NYBMUL, new version N-241 1

O

Operating Hours
 hours of operation as at 19 Mar 79 N-237 5
 sunday operation N-246 5
Operating Staff
 reduction in operating staff N-236 3

P

Paper Tape
 use and charge rates N-236 3-4
* punching tapes on KL N-247 3
PPN - expiry at end of year N-247 3
Printing - new rates & self-service mode N-238 1
Priorities (see Batch priorities)

Q

QDATA - data entry package N-247 2-3

R

Remote Batch Stations
 reading cards on station 2 N-237 4
Runoff
 word processing N-236 10-11

N-248
21Jan80

S

Self-service printing		
Charge rate when installed	N-238	1
availability	N-241	8
deletion of old requests	N-245	4
Seminars	N-239	5-7
	N-240	6-8
	N-241	2-3
SET HOST command (see Networks)	N-241	6-7
Simula		
Version 4 on NEW: on KL	N-236	4
SLOTS - Student Low Overhead Time Sharing	N-243	1-3
facilities extended out of semester	N-246	1-5
Software changes over Christmas break	N-247	5-6
Sort Version 4 implemented on NEW	N-237	3-4
SPSS pocket guides	N-240	3
Statistics on Computer Centre use		
proportions of usage	N-244	5
sources of funds	N-244	6
departmental expenditure	N-244	7-8
Statistical Consulting	N-239	11
Statistical Packages (see CLUSTR, SPSS, STP)		
suite of programs by Prof. Stephenson	N-237	5-6
improvements to these programs on NEW:	N-239	10
new packages GLIM & MLAB	N-239	4-5
STP - assign command not working for KL	N-239	5
Student accounting changes	N-240	4-6
system reliability, reasons for poor service	N-245	1-3

T

Terminals		
automatic answering modem on KL	N-236	5
maintenance charges	N-243	7-8
maintenance calls	N-247	3
Terminal related problems		
difficulty logging into PDP-10 systems	N-239	9-10
terminal connection (see Networks)	N-243	8-10
PDP11 controlled terminals	N-247	4
TYPE program	N-240	2-3
suppression of messages	N-241	1-2
Typesetting (see Word Processing)		

V

VG - generalized data base system		
multiple indexes	N-236	7-8
records flagged for deletion	N-236	8
errors corrected	N-237	4-5
VG TAB - tabulation of VG files	N-240	8-9
VX menu system for VG	N-243	4
VG multiple field search functions	N-243	4-5

N-248
21Jan80

version 2 release
Video editors

N-247 4-5
N-236 10-11

W

Weekend Running of KA/KL systems

introduction

N-238 2

VC's memorandum to departments

N-239 2

private disk mounts

N-239 3-4

sunday operation

N-246 5

Word Processing

available systems

N-236 9-11

document preparation service

N-237 6

* Please note that items that may be of explicit use to users running on either the KA or KL systems have been marked with an asterisk. These are special notes of procedures or errors that are not necessarily documented elsewhere.

This newsletter index is available on the HLP: directory as NLIDX.HLP.

